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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,091	02/26/2004	Yoshinori Matsuura	981032B	2503

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EXAMINER

TSANG FOSTER, SUSY N

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

10/786,091

Applicant(s)

MATSUURA ET AL.

Examiner

Susy N Tsang-Foster

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1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/141,140.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>20040226</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Preliminary Amendment

1. This Office Action is responsive to the preliminary amendment filed on 2/26/2004. Claims 1-8 have been cancelled. Claims 9-17 are pending and are rejected for reasons given below.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/141,140, filed on 8/27/1998.
3. It is noted that a certified translation of the foreign priority has been made in the parent case 09/141,140 in accordance with 37 CFR 1.55 which removes JP 10-134806 as an effective reference. See MPEP § 201.15.

Information Disclosure Statement

4. The information disclosure statement filed on 2/26/2004 has been considered by the Examiner.

Specification

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The abstract of the disclosure is objected to because it appears to be longer than 150 words. Correction is required. See MPEP § 608.01(b).

Claim Objections

7. Claims 11-15 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Dependent claim 11 further limits the metal fluoride when the metal fluoride is chosen from the Markush Group for the metal compound recited in claim 9 or 10, but that claim 11 does

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not actually require that the metal fluoride be chosen from the Markush Group for the metal compound recited in claim 9 or 10.

Dependent claim 12 further limits the metal fluoride when the metal fluoride is chosen from the Markush Group for the metal compound recited in claim 9 or 10, but that claim 12 does not actually require that the metal fluoride be chosen from the Markush Group for the metal compound recited in claim 9 or 10.

Dependent claim 13 further limits the metal chloride when the metal chloride is chosen from the Markush Group for the metal compound recited in claim 9 or 10, but that claim 13 does not actually require that the metal chloride be chosen from the Markush Group for the metal compound recited in claim 9 or 10.

Dependent claim 14 further limits the metal iodide when the metal iodide is chosen from the Markush Group for the metal compound recited in claim 9 or 10, but that claim 14 does not actually require that the metal iodide be chosen from the Markush Group for the metal compound recited in claim 9 or 10.

Dependent claim 15 further limits the metal sulfide when the metal sulfide is chosen from the Markush Group for the metal compound recited in claim 9 or 10, but that claim 15 does not actually require that the metal sulfide be chosen from the Markush Group for the metal compound recited in claim 9 or 10.

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8. Claim 17 is objected to because of the following informalities: In claim 17, "B" should be "b". Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 9-17 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a catalytic metal fluoride, catalytic metal chloride, catalytic metal iodide, and catalytic metal sulfide, does not reasonably provide enablement for all metal fluorides, metal chlorides, metal iodides, and metal sulfides. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. The entire disclosure is drawn to coating a catalytic metal or catalytic metal compound onto the surface of the hydrogen alloy storage electrode in order to prevent corrosion and the only catalytic metals disclosed are nickel, cobalt, aluminum, and copper. It does not appear that all metals which are encompassed by the claims and are not catalytic metals and not disclosed by the specification would work for applicant's invention as intended.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 9, 10, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by the IPDL JPO Machine Translation for JP 08-315852 A.

The IPDL JPO Machine Translation for JP 08-315852 A discloses a method of manufacturing a metal hydride alkaline storage cell comprising the steps of preparing a negative electrode by applying a paste onto a current collector, wherein the paste contains a hydrogen-absorbing alloy powder and a metal sulfide compound in an amount of 0.3 wt % based on the weight of the hydrogen alloy powder (see paragraphs 1, 18, 19 of machine translation and claims 1-5). The metal sulfide can be K_2S , SnS , Na_2S and Sb_2S_3 (see claims 1-5).

Furthermore, instead of adding the metal sulfide compound to the electrode, the metal sulfide compound can be added to the electrolyte instead. In another specific example, a 19.4 g mixture containing the negative electrode active material, carboxymethyl cellulose, styrene butadiene polymer, and water were mixed at the weight ratio of 100:0.5:1:20 such that calculations would show that the mixture contains 15.97 g of active material (see paragraphs 9-11 of machine translation). The reference discloses that the effective range of the metal sulfide compound in the electrolyte is 0.1-10 g/dm³ (see paragraph 14 of machine translation). The battery constructed contained 54 cc of electrolytic solution (paragraphs 10-11 of machine translation). Calculations would show that the amount of metal sulfide compound in the electrolyte can be 0.034% to 3.4% by weight of the 15.97 g of the negative active material. The hydrogen alloy in the negative electrode can be $MmNi_{4.0}Mn_{0.4}Al_{0.3}Fe_{0.3}$ (see paragraph 10 of machine translation). Furthermore, the hydrogen storage alloy can comprise Mm, Ni, Mn, Al,

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Co, Cu, Fe, and Cr given in Table 2 (see paragraphs 15 and 16 of machine translation). A specific example includes $\text{MmNi}_{4.0}\text{Co}_{0.3}\text{Al}_{0.3}\text{Mn}_{0.4}$ (see paragraph 16 and Table 2).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamamura et al. (US Patent No. 5,879,429) discloses treating a hydrogen storage alloy by depositing cobalt or copper onto the surface of the alloy (col. 5, lines 18-40) by immersing the hydrogen storage alloy into an alkaline solution at a temperature of 65 °C or higher containing the cobalt ions or copper ions (col. 3, lines 5-10). The treated hydrogen storage alloy is to be used in a negative electrode of a metal hydride alkaline storage cell (col. 7, lines 35-47). The cell also comprises a positive electrode, and a separator impregnated with an electrolyte (col. 7, lines 55-63).

The hydrogen storage alloy can be $\text{MmNi}_{3.7}\text{Co}_{0.6}\text{Mn}_{0.4}\text{Al}_{0.3}$ (col. 10, lines 10-15) which inherently has a CaCu_5 type crystal structure. The amount of cobalt to be coated in the negative electrode is 0.6 weight percent of the alloy contained in the electrode (col. 10, lines 40-45). In an alternative embodiment, the amount of copper to be coated in the negative electrode is 0.6 weight percent of the alloy powder (col. 15, lines 1-10). A source of the copper ions to be coated is copper chloride and a source of the cobalt ions to be coated is cobalt chloride (col. 3, lines 15-25).

However, Yamamura et al. do not disclose, teach or suggest adding a metal fluoride, a metal chloride, a metal iodide, or a metal sulfide in either the negative electrode comprising the hydrogen storage alloy powder or in the electrolyte of the cell in an amount of 0.1 to 2.5 wt% based on the weight of the hydrogen storage alloy powder.

Mori et al. (US Patent No. 5,506,070) disclose a method of making a negative hydrogen storage alloy electrode for a battery comprising adding a cobalt powder in an amount of 3 to 20 weight percent to the hydrogen adsorbing alloy powder (col. 3, lines 35-50) and that a cobalt compound or a cobalt including alloy soluble in the alkaline electrolyte is added in place of simple cobalt powder (col. 10, lines 13-16). Examples of cobalt compound include cobalt monoxide, cobalt oxides or hydroxides (col. 8, lines 5-27). However, Mori et al. do not disclose, teach, or suggest that the cobalt compound can be iodides, sulfides, fluorides and chlorides of cobalt.

The IPDL JPO Machine Translation for JP 07-211344 discloses adding a fluorine compound such as NaF, KF, ammonium fluoride, MgF, that are soluble in water to a KOH solution that is used as an electrolyte for a battery using hydrogen storage alloy as an electrode but JP 07-211344 does not disclose, teach, or suggest that the amount of the fluorine compound added to the KOH solution is 0.1 to 2.5wt% based on the weight of the hydrogen storage alloy powder in the electrode.

Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang-Foster, Ph.D. whose telephone number is (571) 272-1293. The examiner can normally be reached on Monday through Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at (571) 272-1292.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

st/ *Susy Tsang-Foster*

Susy Tsang-Foster
Primary Examiner
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